

Message Text

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FOLLOWING REPEAT OECD PARIS 13966 ACTION SECSTATE 11 MAY 77

QUOTE

C O N F I D E N T I A L OECD PARIS 13966

PASS STATE FOR NYE, NOSENZO; ERDA FOR SIEVERING,
GIAMBUSSO, VANDERRYR, CUNNINGHAM, BEKJORD

E.O. 11652: GDS

TAGS: TECH, OECD

SUBJECT: INDIAN LMFBR DEVELOPMENT

1. BEGIN SUMMARY: INDIAN PROGRESS TOWARDS A BREEDER
REACTOR ECONOMY BASED UPON A U-233/THORIUM FUEL CYCLE
IS DESCRIBED. WHILE OF OBVIOUS TECHNICAL INTEREST,
THIS PROGRAM HAS POTENTIAL POLITICAL MEANING IN VIEW
OF U.S. NON-PROLIFERATION POLICY. END SUMMARY.

2. AS SUGGESTED IN THE ERDA KEY STAFF ATTENDANCE
PLAN, THE OECD SCIENCE ADVISOR FOR ENERGY R&D AND
TECHNOLOGICAL MATTERS ATTENDED THE TECHNICAL SESSIONS
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ON RAW MATERIALS AND FUEL TECHNOLOGY AT THE SALZBURG
NUCLEAR FUEL CYCLE CONFERENCE. AT THESE SESSIONS AND
ALSO AT ONE DEALING WITH NUCLEAR POWER IN DEVELOPING
COUNTRIES, REPRESENTATIVES OF THE DEPARTMENT OF ATOMIC
ENERGY OF INDIA PRESENTED PAPERS ON THEIR NUCLEAR
POWER PROGRAM WHICH EMPHASIZED THE FUTURE ROLE OF
THORIUM IN THE PRODUCTION OF NUCLEAR ENERGY IN THEIR

COUNTRY. THORIUM UTILIZATION WAS IN THE CONTEXT OF THE NATION'S DESIRE FOR SELF-RELIANCE.

3. MISSION BELIEVES IT USEFUL TO REVIEW WHAT IS KNOWN OF INDIAN ACTIVITIES IN THIS FIELD, PARTICULARLY IN RELATION TO THE ON-GOING, BUT SELDOM DISCUSSED, PROGRAM ON LMPBR DEVELOPMENT. THIS LATTER EFFORT NOW GAINS ADDED SIGNIFICANCE IN RELATION TO U.S. NON-PROLIFERATION OBJECTIVES.

4. INDIAN INTEREST IN THORIUM UTILIZATION IS BASED UPON ITS VAST THORIUM RESERVES AND COMPARATIVELY LOW KNOWN URANIUM RESOURCES. ACCORDING TO ONE ESTIMATE, INDIA HAS ON THE ORDER OF ONE HALF OF THE WORLD'S 1.25 MILLION TONS OF REASONABLY ASSURED THORIUM RESOURCES (AT LESS THAN \$10 PER POUND). THUS, INDIA CAN AND IS PROCEEDING WITH A STRATEGY OF NUCLEAR POWER DEVELOPMENT BASED UPON A THORIUM FUEL CYCLE. THIS PROGRAM CONTAINS SIGNIFICANT POTENTIAL FOR SELF SUFFICIENCY. A THREE PHASE STRATEGY WAS DESCRIBED AT SALZBURG. THE FIRST PHASE IS BASED UPON NATURAL URANIUM FUEL; THE SECOND ON THE UTILIZATION OF PLUTONIUM IN BREEDER REACTORS USING DEPLETED URANIUM AND/OR THORIUM AS FERTILE MATERIAL; AND A FINAL PHASE ON THORIUM BREEDERS USING U-233 AND CONVERSION OF THORIUM.

5. THE FIRST PHASE IS CURRENTLY UNDERWAY AND WAS DISCUSSED EXTENSIVELY AT THE SALZBURG MEETING. THE CONFIDENTIAL

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SECOND PHASE, WHICH WAS NOT MENTIONED AT ALL, IS IN ITS INITIAL STAGE. ALTHOUGH DETAILS OF THIS PROGRAM ARE EXCEEDINGLY DIFFICULT TO OBTAIN, IT IS BASED UPON OPERATION OF A RAPSODIE-TYPE LMFBR REACTOR WHICH WAS SOLD TO INDIA SEVERAL YEARS AGO BY FRANCE. FRANCE IS SIGNATORY TO AN AGREEMENT TO PROVIDE ASSISTANCE IN THE CONSTRUCTION OF THIS PLANT WHICH IS ALMOST A REPLICA OF THE FRENCH TESTING REACTOR LOCATED AT CADARACHE. WHEREAS THE FRENCH REACTOR IS USED FOR TESTING BREEDER FUEL, THE INDIAN VERSION WILL INCORPORATE A STEAM GENERATOR FOR ELECTRICAL POWER PRODUCTION. CRITICALITY WAS ORIGINALLY SCHEDULED FOR 1978 BUT RECENT INFORMATION INDICATES THAT 1980-81 MAY BE MORE PROBABLE. IT HAS BEEN REPORTED THAT THE PROGRAM INVOLVES THE USE OF THORIUM (PROBABLY AS U-TH OXIDE) WHICH IS CONSISTENT WITH THE KNOWN INDIAN DEVELOPMENT PROGRAM IN THIS AREA. IT IS NOT CLEAR WHETHER SUFFICIENT PLUTONIUM WILL BE AVAILABLE FOR THE CORE OR WHETHER U-235 IS CONTEMPLATED.

6. THE ABOVE INFORMATION INDICATES RELATIVELY RAPID INDIAN PROGRESS TOWARDS A BREEDER REACTOR SYSTEM WHICH IS INTENDED TO BE BASED, AT LEAST IN ITS FINAL STAGE, UPON A U-233/THORIUM FUEL CYCLE. THIS PROGRAM HAS OBVIOUS TECHNICAL INTEREST BUT EQUALLY SIGNIFICANT AND ALTHOUGH OBVIOUSLY NOT ORIGINALLY INTENDED AS SUCH, HAS POTENTIAL POLITICAL MEANING IN THAT IT CAN BE VIEWED AS BEING CONSISTENT WITH CURRENT U.S. NON-PROLIFERATION POLICIES EVEN THOUGH IT MAY UTILIZE HIGHLY ENRICHED URANIUM OR PLUTONIUM IN ITS EARLY PHASES.

7. ON A SEPARATE BUT RELATED SUBJECT, IN CONNECTION WITH THE APRIL 5 MEETING OF ERDA STAFF CALLED BY NELSON SIEVERING TO DISCUSS REACTIONS TO U.S. NUCLEAR POLICY, THE OECD SCIENCE ADVISOR FOR ENERGY R&D MET
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WITH THE HEAD OF THE SAFETY PROGRAM OF THE MEXICAN NUCLEAR ENERGY INSTITUTE. OPPOSITION TO U.S. NUCLEAR OBJECTIVES CONNECTED WITH REPROCESSING AND BREEDER REACTORS WAS EXPRESSED. THIS DISSATISFACTION WAS NOT TECHNICAL IN SUBSTANCE BUT, RATHER, WAS BASED UPON CONCERNS THAT THE U.S. WAS DICTATING NUCLEAR POLICY AND IN PUBLIC AS WELL.
KATZ.
UNQUOTE CHRISTOPHER.

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